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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,123	11/30/2001	Andre Liem	STL10241	4429

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Derek J. Berger, Seagate Technology LLC
Intellectual Property - COL2LGL
389 Disc Drive
Longmont, CO 80503

EXAMINER

TUGBANG, ANTHONY D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,123

Applicant(s)

LIEM ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The applicant(s) response filed on 10/27/04 has been fully considered and made of record.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 6 and 9-11, 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 6, the limitations of “the first stiffening element...continuous piece of material” (lines 1-3) are new matter. The specification and drawings, as originally filed, does not provide support for forming either the first stiffening element or the second stiffening element with the actuator arm, as one, single continuous piece of material. For example, in the applicant(s) Figures 7 and 8, the first and second stiffening elements 315 are shown as completely separate pieces of material from the actuator arm 310. Even if these were formed of the same material, the stiffening elements 315 and the arm 310 are not shown as one, single piece of continuous

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material. They are shown and labeled in the Figures as separate elements and thus, separate pieces of material.

The specification discloses that the stiffening elements and actuator arm are formed integrally with one another (bottom of page 12). However, nowhere in the disclosure is it ever recited that the stiffening elements and actuator arm are formed as one, single continuous piece of material. The term “integrally” can simply mean that the actuator arm and the stiffening elements are formed as being *together*, or *united*, with *one another*, and not as one, single continuous piece of material.

In Claim 9, the same problems with the limitations of “the arm and...material” (lines 13-14) occur as with Claim 6 above.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 9-11, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Karam 5,408,372.

Regarding Claim(s) 1 and 9, Karam discloses a method for making a data storage device comprising: determining that an actuator system is designed with a spring-mass structure characterized by a first bending mode of a first natural frequency and a second bending mode of a second natural frequency (see discussion of the multitude of frequencies at col. 8, lines 23+);

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modifying an arm to as to raise natural frequencies during operation, which includes providing a first stiffening element (crimps 52 in Fig. 5) protruding from a first longitudinal edge; and assembling the actuator system into the data storage device (magnetic recording medium discussed at, for example, col. 1, lines 21+). The “first stiffening element” minimizes or damps resonant frequencies at locations on the arm where the first stiffening element is formed and maximizes, or raises to a substantial degree, the resonant frequencies at locations or areas on the arm where the first stiffening element are not formed (see col. 10, lines 18-46).

Regarding Claim(s) 2-6, 10, 11, 13 and 14, Figure 5 of Karam shows a second stiffening element 52 formed on a second longitudinal edge opposite to the first longitudinal edge where each are identical and form a protruding “rail” from the arm. Furthermore, the first and second stiffening elements (crimps 52) are shown in Figure 5 to be formed as one, single, continuous piece of material that defines a first plane in a vertical direction that is orthogonal to the arm in a second plane that is in a horizontal direction.

6. Claims 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by WO’544.

Regarding Claim(s) 15, WO’544 discloses a method of making a data storage device where the step plus function of “a step for tuning...of the arm” (lines 3-5 of Claim 15) is read as being equivalent to blocks 610, 620, 630 (in Fig. 6), which includes providing a first stiffening element (carbon fiber in anyone of layers 510, 520 or 530) on a first longitudinal edge and providing a second stiffening element (carbon fiber in anyone of layers 540, 550) on a second longitudinal edge of the arm; and assembling a designed actuator or actuator arm into a disk drive adjacent a storage medium (see Figure 2).

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Regarding Claim(s) 16, WO'544 teaches that the arm is modified to raise at least one, i.e. a first, natural frequency.

Regarding Claim(s) 17 and 18, the carbon fibers of WO'544, which are read as the stiffening elements, have a structure that is "generally elongate" on the arm.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karam.

Karam discloses the claimed manufacturing method as relied upon above.

Regarding Claim(s) 7 and 8, Karam teaches substantially all of the limitations of the claimed method except copying the modified prototype to construct a production version of the designed actuator that is similar to the modified prototype.

The examiner takes Official Notice that it is well known in the art to copy prototypes to construct a production version of the designed actuator through the use of computer aided design. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Karam by copying the prototype for such conventional benefits of making multiple production versions of a data storage device with a copied prototype.

As evidence of obviousness, the examiner cites Tangren (U. S. Patent 6,023,574), which teaches finite element analysis (FEA) to copy prototypes and modify them to construct a production version (see col. 6, lines 54+).

Response to Arguments

9. Applicant's arguments with respect to Claims 1-11, 13 and 14 have been considered but are moot in view of the new ground(s) of rejection set forth above.

In regards to the merits of WO'544 as applied to Claim 15, the applicant(s) believe that 112, sixth paragraph invoked in Claim 15 (at lines 3-5) somehow limits the step to include the function of "providing a stiffening element protruding from an edge of the arm".

The examiner most respectfully traverses. If this were true with respect to 112, sixth paragraph, then why would the applicant(s) even need Claims 17 and 18, which further limits step a) as having a "stiffening element"? The examiner has properly interpreted the step-plus-function (lines 3-5 in Claim 15) to mean that the prior art can have an alternative equivalent step-plus-function. In this case, WO'544 includes the step of providing the stiffening elements of carbon fibers to enable at least one, i.e. a first, natural frequency to be tuned while minimizing a change to a second natural frequency. This is clearly disclosed by WO'544 at pages 10-11 and in the flowchart at Figure 6. For example, WO'544 states:

Increasing angles θ , β , Φ , and τ will increase the torsion mode frequencies, and lower the frequency of the bending modes... (see page 11, lines 8-9).

So the examiner's position is that WO'544 clearly meets the recited step-plus-function (lines 3-5 of Claim 15).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

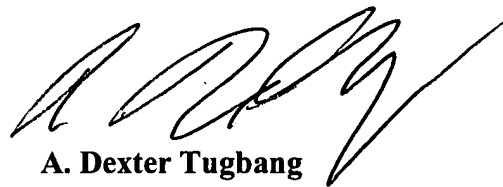
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'A. Dexter Tugbang', is written over the printed name.

A. Dexter Tugbang
Primary Examiner
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December 30, 2004